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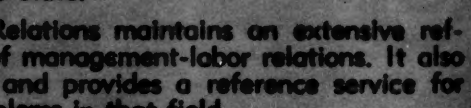


Dean

Economic progress brings human problems in the machine age that challenge our skill and courage.

Can We Humanize the Robots?

Harlan H. Hatcher

WE meet here in the center of the great heartland of America,—the marvel of the industrial world. It is a region that has excited the minds of civilized men from the day when Cartier first heard its legend in 1535, through the sign language of the Indians at the sites of Quebec and Montreal, right down to the moment of our speaking. It led Champlain and the French explorers through astounding hardships back into the unknown wonders of the lakes. It inspired missionaries to traverse its vastness to bring the word of God to the Indian tribes who dwelt there. In our own national period it has called forth the fullest creative energy from the American genius. This has all been done in relatively so short a period of time that we may easily sweep our minds across a few generations and see it unfold step by step—from a vast and unknown wilderness to its present position at the center of the nation's greatness.

If the strip of shoreland, a few miles deep, around the Great Lakes were wiped out, America would still be a great nation. It could not, however, have achieved its present position of supremacy. The men and the resources gathered together in this region have provided the differential. Here agriculture and industry have met and joined complementary forces.

The story of this region and the miracles wrought here have been too little known both at home and abroad. During the preceding half century, the period of its greatest growth and influence, little was written about it. Some of its cities were world famous, of course; generally for some specific item featured in the public mind: Milwaukee as the home of certain brands of beer; Chicago as much for its gangsters as for Carl Sandburg's poem; Detroit for its motor cars; Toledo for its glass; Cleveland for its steel and tools; Buffalo for its granaries and its proximity to Niagara Falls. Otherwise, and for the most part, the area was vague or blank. And yet there had been enacted here sometimes quietly, sometimes stridently, one of the great dramas of all history; the conquest of a somewhat inhospitable terrain, the gathering together of peoples from all lands under a common ideal to form a new nation, and the building of massive key industries with all their supporting framework.

I take it as a happy omen that the whole region is now better known than it was a few years ago, and that its role in the national development and its present strategic importance to our welfare and our safety are more fully understood by our own people and our allies—as well as by our envious detractors.

It is sufficient for our present purpose merely to mention these developments. I doubt if there is anyone in this assembled gathering who could not fill in many of the details. You have already been doing so rapidly in your minds as the broad contours have been suggested. We shall use this historic canvas as an

About the author—

On September 1, the University of Michigan welcomed Dr. Hatcher as its eighth president. This paper is an address which he delivered before the Economic Club of Detroit on October 15.

exciting backdrop against which we may view in better perspective some of the more perplexing cares to which we in these times must give attention.

Not the least of them is the ominous shadow of a monster that seems to have become as real to our day as Cerberus, Satan, or the Four Horsemen of the Apocalypse were to men of earlier times— the mechanical man whom we have christened the robot. He has come to symbolize the fragmentation of man's total complex capacity for work into a few simple and rudimentary performances, and he personifies the vague terror of dehumanized atomic destruction. Therein lies the strangest paradox of our times.

Innovation and Development

The mere circumstances of our nation's colonial beginning and its physical setting challenged the ingenuity of our people to fend for themselves. They had, of hard necessity, to invent and make what they needed, or go without. The energy and the versatility which they displayed excites our admiration and respect. Their products are now proudly displayed in scores of splendid regional museums. I like nothing better than to visit them and reflect on their meaning for us. Here are crudely fashioned rakes, cradles, and flails; carding-machines, spinning wheels, and looms; candle molds, apple peelers, cobblers' benches—and so on through a hundred special items designed to improve and simplify the problem of providing for the needs and the comfort of the families on the advancing frontier. Out of this inexhaustible skill in contriving emerged with constantly increasing acceleration the great pattern of diversified industry that has become synonymous with America.

We soon built a tradition and put a stamp on the nation. "Yankee ingenuity" was the phrase on the trade mark. By the time Andrew Jackson and his Mississippi Valley legions marched into Washington to take over from the illustrious Virginia and New England leaders who had set the course of the Republic, we were already known the world over as a nation of mechanics, shopkeepers, and traders. We accepted and carried that banner with pardonable pride. We swept across the wide continent, we built turnpikes, canals and railroads. The eyes of the world were focused upon us. Here was a nation of free men, governing themselves, making new products, creating a new way of life and a new concept of the dignity of man at work, and it became a glowing torch of hope to all men.

At no point along the road have we for an instant slackened in our zeal and in our endeavors in mechanical productivity. The miracle of yesterday's accomplishment became the commonplace of today as we drove new stakes for tomorrow. There is no end in sight. The horizon widens geometrically, as the vision and the capacity of our people grow and mature.

We have been doing all this through the generations with unbounded zest and satisfaction. We have been so self-contained, so preoccupied with our own internal growth, that it has come to us with something of a shock that this unceasing diligence has now lifted us into the position of world leadership with all the rewards and penalties attendant upon that exalted station.

The Threat of the Robot

It has also confronted us with the self-contradiction that the source of our supreme strength should also beget the doubts and fears that beset us. We could not choose but invent and create the machinery by which we live, and yet we have been unable to live comfortably and at ease in its presence. At least from the day of the Trojan Horse, men have presupposed that there is something sinister about a machine, that, once it is created, it takes on a power and a destiny of its own beyond the rational control of the men who made it. Even Prometheus, who stole fire from the gods and taught men how to use it in the arts, was chained to a rock in Caucasus for his benevolent effrontery.

Our fathers had a word for it. It was known to them as Frankenstein. You may remember

Mary Shelley's story published in 1817: how the scientist Frankenstein created in his laboratory, by mechanical means, what he hoped would be a new Prometheus bringing blessings upon struggling mankind; how, instead, his creation became a soulless monster, animated with evil, who pursued his creator and all his family to destruction and death.

The first power looms introduced into Germany and England were looked upon by the weavers as Frankenstein monsters designed to destroy them by taking away their livelihood. They staged riots and burned down the new mills. The same thing happened with the introduction of power saws, the cotton gin, standard gauge for railroad tracks, and a thousand other improvements. In fact, the owner of the horse tramway portage around the falls at Sault Ste. Marie did not welcome the building of the Soo Canal in 1855.

As the years of our growth have gone by, and the American system of mass production on the assembly line principle has made its irresistible impact upon the entire world, Frankenstein was outdated. His monster was too simple to cope with developments. Karel Capek of the brief-lived Republic of Czecho-Slovakia gave the world a new symbol for its apprehensions. In a play entitled *R.U.R.*, he created for the world the image of Rossum's Universal Robot, swarming over civilized men. His own little country was successfully engaged in American style creativity during its brief existence as a republic between the end of World War I and the outbreak of World War II. Capek saw the dangers of a too rapid revolution from peasanthood to industrial communities. He also foresaw all too clearly the approaching engulfment by Hitler's and Stalin's Nazi and Communist robots.

Long before the sinister purposes of Communism were stabbed into the consciousness of the world, Capek had written a grave warning: "When all is said, Communism is out to rule, not to rescue; its great watchword is power, not help. For it poverty, hunger, unemployment are not an unendurable pain and shame, but a welcome reserve of dark forces, a fermenting heap of fury and loathing... Nobody will seriously maintain that the masses will rule. They are only a means to certain ends; they are simply political tools..." The word robot therefore combines the fear and foreboding of the dominance of machinery with the awful specter of men reduced to the woeful status of faceless and expendable mechanical pawns carrying the powerful weapons of modern war for the destruction of our civilization.

And if you care to see all the ominous tendencies of our times projected unaltered into the not too distant future, you may read Aldous Huxley's brilliant satire, *Brave New World*, where the various classes of society are manufactured scientifically according to need, where the slogans are "Community, Identity, Stability," and where, even at Heaven's gate, the lark sings "Honk! Honk!"

What is the source of this fear, particularly in our own nation which has created a new concept and a new standard of the richness and comfort of living possible to reasonable men upon this earth by the application of scientific knowledge and mechanical skills to the problems of production?

Emancipation From a Cultural Inferiority Complex

I think that it has risen historically out of the fact that during most of this period of miraculous growth we nourished culturally an inferiority complex. We had freed ourselves in a political and national sense, and we had moved to the forefront in agriculture, commerce, and industry. We were still in a state of colonial dependency in higher education, in philosophy, literature, and the fine arts.

Our Intellectual Declaration of Independence was not made until 1837. At the end of the summer of that year, young Ralph Waldo Emerson journeyed from Concord down to Cambridge and electrified the Phi Beta Kappa audience at Harvard, and the world, with these opening words:

"Perhaps the time is already come ... when the sluggard intellect of this continent will look

from under its iron lids, and fill the postponed expectations of the world with something better than the exertions of mechanical skill. Our day of dependence, our long apprenticeship to the learning of other lands, draws to a close. The millions that around us are rushing into life cannot always be fed on the sere remains of foreign harvests."

In the same year of this declaration, we note with satisfaction, the new state of Michigan entered the Union, and founded under its Regents the Universty of Michigan at Ann Arbor. Emerson was, indeed, rightly appraising the quality and the direction of the times.

It has taken us a full century to make that declaration good. It has been made good—as attested by the present position of our outstanding universities, by the maturity of our art and letters, and by the reversal of interchange, which now brings to our country students and artists from the lands upon which we were previously dependent.

Along with this honorable achievement, the fruits of which are just beginning to be felt and recognized, have gone other developments which should give us confidence and hope. This, too, is only beginning to be felt and understood. We do not yet even have a good name for it. Perhaps it is best set forth by saying that it is the great transition from the era now often referred to as that of the Robber Barons, to the complex industrial communities that are now rising everywhere around us under more enlightened and responsible leadership.

Grounds for Confidence

I say that it is not fully understood because too much conflict still obscures the accomplishment which may allay our fears and humanize the robot. Too many of us are viewing this emergent era through the gauze curtain of the raw buccaneer period when the continent was being subdued. There is a great text from the scripture which is applicable to us. Profound discouragement settled over the Israelites when they were carried into captivity in Babylon in 597 B.C. They gave up all hope and blamed their fathers for their desolation. The fathers had sinned and their children suffered.

Then rose the Prophet Ezekiel among them on the banks of the river Chebar at Tel Abib in the year 593 and changed the course of human thought. He said, "The word of the Lord came unto me again, saying, 'What mean ye, that ye use this proverb concerning the land of Israel, saying, ' "The fathers have eaten sour grapes, And the children's teeth are set on edge?" ' 'As I live,' saith the Lord God, 'ye shall not have occasion any more to use this proverb in Israel. Behold, all souls are mine; as the soul of the father, so also the soul of the son is mine: the soul that sinneth, it shall die. But if a man be just, and do that which is lawful and right . . . he shall surely live,' saith the Lord God." Under the tutelage of Ezekiel, the Israelites rose from despair to confidence.

I do not pass judgment upon the builders of an earlier era in our own country. They had their problems and their opportunities, and they met both in their own way. I know of not a single industrial leader of our day, however, who would defend the business practices, the labor policy, or the code of ethics of that generation as applicable to our times. They do recognize that the sour grapes which these men ate are an inevitable portion of our inheritance and that the attendant problems have set our teeth on edge. Because of the reluctance of some of our fathers to recognize and institute out of their understanding necessary reforms for the changing times, they were compelled to yield as villians what they might have granted as enlightened leaders.

Toward Harmonious Living

In this tragic drama, shrewd and sometimes unscrupulous men were enabled to cast themselves in the role of saviors of the people, who forced concessions from unwilling and rebellious magnates. They still find it to their advantage to preserve this cast of characters and as a result to exaggerate them into two hostile and warring camps. This is not good for the country—it is not good for anybody— and it

is no longer necessary. The fact that our fathers ate the sour grapes is no reason why our teeth should continue to be set on edge.

We are now, and we shall continue to be, an industrial nation. The most arresting figures that we can set before ourselves are the simple and memorable ones that in the time of our fathers 85 per cent of our people were on the land producing the food and textiles needed by the nations; only 15 per cent were in urban industry. Now the proportion is exactly reversed, and only about 15 per cent are needed on the land.

Where are the others? They are in the great and growing industrial communities where a single industry knits together—through workers, management and stockholders—an interdependent family larger than our biggest cities of only a few decades ago. Useful and harmonious living in these communities is no more a calling for robots or buccaneers than it is for an encampment of hostile groups. It requires the responsible action of all citizens. It is simply the democracy of our forefathers at work in a changing world. It should excite no costly strife; it should call out a little of our plain common sense, infused with a little Christian charity. We must apply our accumulating knowledge and understanding to this new imperative need of our nation with the same spirit and energy with which we applied them to our agricultural problems beginning almost a century ago under the Morrill Act which was signed by Abraham Lincoln along with the Homestead Act. New occasions teach new duties.

This is not the occasion to enlarge upon these points and principles. It is sufficient here to state that they have within them the potential of bringing us forward out of the morass of a robot's world of doubt and fear, of villainy and strife.

Foreign Tyrants Would Make Robots of Us All

There is one other most urgent and serious consideration which we must face. It is the dilemma of free American men at dignified work in their respective callings in an age of growing productive power confronted by the massive collections of robots under the absolute control and manipulation of tyrannical leaders in other portions of the common world. The disclosed aim of these tyrants is to make robots of us all.

This threat has overshadowed our own internal problems—and complicated them. The worst feature of it is that it has, perhaps for the first time in our history, deprived us of our power of choice in determining what we shall do with our mounting productive potential. Despite the fact that we have been involved in many wars, it is still indisputable that we prefer to choose peace. If the choice were ours to make, overwhelmingly we would turn all our resources, all our ingenuity, all our skill and energy toward building a better world. We would throw our full genius into the humanity of the Phoenix Project instead of stockpiling atomic weapons. Our national character and our respect for other peoples were perfectly expressed when we rushed rescue ships and tons of medical supplies and food to the Japanese when the earthquake devastated their islands a few years ago. We have used our fleet more often on missions of good will than our guns for destruction. It is not only with reluctance, but with gnashing of teeth that we convert our instruments of production from supplying the wants of the nation to the race for weapons of war; that we take out precious years from the lives of our young men, when they should be in training for production and for good and useful living, in order that they may bear those arms with skill.

Strength Through Effort

Casting our eyes forward through the avenue of the future we see plainly the nature of the task that is set out for us. Fully conscious of our danger, we must keep America strong by continuous resilient effort. We must educate our young people in the full knowledge that if we can bring out the best that is within them through the American traditions,

we build up increasing resources for our preservation and our advancement. We must never for a single instant treat them as a burden and an expense, but as our most imperative investment which can neither be liquidated nor wiped out by inflation. Every step in our miraculous progress has been made by our people, with our people, for our sons and our sons' sons. It is a continuous creative process. It has no neutral gear for idling. Only by our own sweat can we retain the precious heritage which our forefathers bought with their blood.

For this we must begin at home, right on our own doorstep. It was not selfishness, but a portion of the Divine wisdom, which, in the first chapter of the book of Acts, enjoined the Apostles to bear witness first in Jerusalem, then in Judea and Samaria, and finally unto the uttermost part of the earth. We dare not forget the order of that command—as we are in danger of doing.

Neither may we forget or neglect the ultimate objective. Within the limits of our strength we must wage unceasing struggle against the powers of evil and darkness. Just as Tom Paine's pen was worth more to General Washington than a legion of foot soldiers, so the power of the American Dream is ultimately less resistible than an atom bomb. And its effect is to beget understanding and happiness and not to perpetuate out of evil a still darker evil. It therefore behooves us, while we fight fire with fire, to nourish and faithfully to proclaim by words and deeds, the nature and the fruits of that dream.

Men Are Not Robots

Behind the hard walls and the curtain of darkness there lies a region of hope in the common humanity of human beings. For the hearts of men are not steel boxes in a robot's frame, but flesh and blood breathed upon by the breath of life in the instant of creation. They may not permanently be confined behind any curtain of iron or stone or political tyranny. And on his highest level man has always spoken a common language regardless of his time or his geographical location. The prophets of Israel, the wise men of the East, the philosophers of the Orient, the sage of Concord—all of them, in every age, have spoken directly to the minds and hearts of men of all nations and of all times, of wisdom and justice and righteousness, and no man has disagreed. The amalgamation of diverse peoples to form and create this nation is a living testimony to the rightness and the potency of their understanding. It is the key to the humanization of the robots.

With the proud achievements of the past standing behind us as a towering monument of hope and confidence, I, for one, on the basis of hard reality as well as an act of faith, accept our place in the procession of the generations, who, for a brief period each, are charged with the stewardship of this earth. And in that faith confront the swarming robots, not with teeth set on edge, but in the spirit of Ulysses, who, with his household once more in order after his long absence at the Trojan war, summoned his mighty men around him and said,

"Come, my friends,
'Tis not too late to seek a newer world.
Push off, and sitting well in order smite
The sounding furrows; for my purpose holds
To sail beyond the sunset and the baths
Of all the western stars, until I die.
It may be that the gulfs will wash us down:
It may be we shall touch the Happy Isles....
... that which we are, we are;
One equal temper of heroic hearts,
Made weak by time and fate, but strong in will
To strive, to seek, to find, and not to yield."

An expert sees the St. Lawrence Project as a source of power and a provision for cheap transportation which would be self-supporting and self-amortizing

The St. Lawrence Seaway and Power Project

F. N. Menefee

MORE has been said and written pro and con concerning the proposed St. Lawrence Seaway and Power Project than about any other project of its kind ever considered by a forward-looking people. The books, pamphlets, technical articles, government publications of hearings, government publications of engineering and economic studies both State and National, records of Seaway Associations, records of the twenty-year legal controversy in Chicago over diversion of water from Lake Michigan which otherwise would flow out the St. Lawrence, newspaper articles and printed speeches would, if all brought together, form a library of considerable size.

It might be well at the outset of this, another article on the subject, to define and geographically locate the St. Lawrence Seaway and Power Project, for it is not some remote and isolated affair entirely different from anything at present on the River, as the uninitiated sometimes believe. (See Plate 1) It consists of navigational structures (locks and canals by-passing the rapids just upstream from where the River enters wholly Canadian territory), and a large power plant, not different in principle from navigational features and power plants already on the River. Fourteen-foot draft seagoing craft come up to the Great Lakes now, climbing the 112-mile stretch west of Montreal by means of locks and canals to reach the level 68-mile portion of the River flowing from Lake Ontario. In the 112-mile portion, part of which is in Canada, there are power plants as well as locks.

The western 48 miles of this 112-mile portion of the River lie between Canada and the United States, the River forming the International Boundry. In this 48-mile stretch, the River drops approximately 100 feet through the Long Sault Rapids, an excellent place for a 2,000,000 horsepower hydroelectric power plant and a necessary location for new locks to lift and lower 25-foot draft boats that cannot ply the locks and canals provided for the 14-foot draft boats on the Canadian side. In this international section of the River, two lift locks and one control lock, one large impounding dam and one smaller control dam form the navigational feature of the proposed Seaway. One large power plant to be constructed across the north channel of the River is the Power Project.

Boats of 25-foot draft may now come up the River to Montreal or they may go down from the upper Lakes to Lake Ontario via the Welland Canal just west of Niagara Falls, but they cannot pass the Long Sault Rapids in the River at Cornwall. The proposed pro-

About the author—

Dr. Menefee is Professor of Engineering Mechanics in the College of Engineering of this University. He has had extensive experience as an engineer, businessman, and teacher in railroads, power plant design, hydraulic engineering, and re-enforced concrete. His analyses of the subject of this article are presented more extensively in his book, *The St. Lawrence Seaway*.

vision for their doing so, by locks and canals, along with the power plant, has come to be known as the St. Lawrence Seaway and Power Project. In 1951, the U. S. Corps of Engineers estimated the cost of the project at $818,063,000.

Past Studies of the Project

Studies of this undertaking, both engineering and economic, have been under way for many years. United States Army Engineers, in cooperation with Canadian Government Engineers and the International Joint Commission, have been making surveys, plans, and estimates for more than 30 years. The New York Power Authority and the Federal Power Commission have been actively engaged in studies for 20 years. Indeed, in 1932 a treaty was negotiated with Canada by President Hoover and Secretary of State Henry Stimson providing for the construction of the project by the two countries. This treaty failed of ratification (46 for, 42 against) in the United States Senate in 1934.

In spite of the failure of the attempt at ratification, the studies went on, for none of the proponents believes that 2,000,000 or more horsepower of electrical energy will be allowed to waste itself for all time in turbulence over and around the rocks in the rapids. We cannot approach maximum production without making maximum use of our natural resources.

Having failed to secure the necessary two-thirds affirmative vote (66) of the Senate, required for treaty ratification, an executive agreement between the United States and Canada was drawn up and signed by proper State Department officials on March 19, 1941. World War II had started, and the power and the twenty-seven foot navigation channel would be valuable. An executive agreement required only a majority affirmative vote of both Houses. While the agreement made no mention of defense, its proponents put it forward as a defense measure. Hearings were held, and for a time optimism ws high; but it was clear to many that neither the power nor the locks and canals could be available in less than three years, and many thought five. The materials and manpower for building the project were needed to get industry mobilized and under way for armament. The boat had been missed and temporarily at least the two countries would have to depend on speeding up with the facilities they had. The 1941 agreement was never approved.

Arguments for the Project

Proponents of the Seaway and Power Project prior to 1934 said:

1. The iron content of the Mesabi Ore in Minnesota was declining. Higher grade foreign ore would have to be brought in to be mixed with it if the Great Lakes Basin were not to suffer an unnecessary increase in the cost of steel.

2. The Seaway would provide lower transportation costs for 26,000,000 tons of bulk materials between the Lakes and the Seaboard, including foreign high iron content ore. (At the time it was not known that ore would be found in Quebec and Labrador north of the St. Lawrence River.)

The Seaway would be a valuable supplement to our transportation system in peace and in war, without financially damaging our railways, because of the anticipated expansion of industry and transportation requirements.

3. The per capita power demands were increasing so fast both in Canada and in New York State that there would be a shortage of power unless new plants—either steam or hydro—were built.

All of these arguments have been proved true. In the intervening years the iron content of Mesabi ore has dropped from 50 to 46 per cent. We are going to Liberia and Venezuela for high grade ore to be mixed with our Mesabi direct-shipping, open-pit ore. If it can be had from closer-by over a protected self-sustaining water route at less cost, good business says provision should be made for getting it. Chicago mills are importing high grade ore from Utah by rail to mix with the lowering iron content Mesabi ore. Steel companies are

spending millions of dollars in research to find a way to reduce Minnesota taconite ore *cheaply*. As yet they have not succeeded. They are spending more millions in prospecting and developing ore properties in Liberia, Venezuela and Labrador.

What more convincing corroboration of the predictions of 20 years ago can be had? These realistic business leaders recognized the facts and started doing something about it. They have found the direct-shipping, open-pit high grade ore. They are developing the properties, and in the case of Liberia and Venezuela they are bringing the ore to our steel mills near the Atlantic Coast. In the hearings before the House of Representatives Committee on Public Works for 1951 it ws brought out that private capital has indicated a willingness to develop the power for general use and the navigational features of the Seaway as a part of their transportation system.

Governmental Attitude

But due to a long-established policy, the development of navigable waters falls within the jurisdiction of the Federal government. Added to that is the fact that the St. Lawrence River at the location under consideration is international in character. No one has ever suggested that a way might be found whereby private interests could own and operate the Seaway and Power Project to the satisfaction of all concerned. This throws the responsibility for authorizing its construction on the national governments of Canada and the United States, at a time when there is growing hostility to expanding government-owned utilities. But since the bills before the Senate and House provide for self-supporting and self-amortizing navigation and power, and since in my judgment both phases of the project can be self-supporting and self-amortizing while filling definite need on the part of industry for power and cheap transportation, it is difficult to find reasons for justifying the negative vote of 17 to 15 by the House Committee on July 27, 1951.

New York State and Ontario are so sure of the economic justification of the power phase that they have agreed to go ahead and build the power plants and impounding dams, issuing bonds against the utility, New York asking the Federal government for nothing but a license authorizing it to proceed. The State of Michigan is opposing this action on the part of New York, fearing that once the power and navigational facilities are separated, the navigational features will be forced to languish. It occurs to the writer that a better policy would be to take more positive action in promoting the joint Seaway and Power Project than to put effort into crippling New York's effort to get power that should be made available on both sides of the border without delay.

Since 1934 and 1941 when the former attempts to obtain approval failed, the MacArthur Lock at Sault Ste. Marie, has been installed by the United States. It is 800 feet long, 80 feet wide, and 27 feet deep over the sills, i.e., it was built to Seaway specifications. It handled 42,000,000 tons in 1945, most of it in one direction. The locks in the international section under consideration would handle more two-way tonnage and at last calculation would have a capacity of 45,000,000 tons, as would the Welland Locks. With high-grade open-pit ore available from Labrador, there is little doubt but that the Seaway would be passing 45,000,000 tons within a few years, which at an average toll of 50 cents a ton would provide revenue sufficient to operate and maintain the locks and to amortize their first cost in 50 years or less.[1] In addition there would be a stimulation to industry by the saving of approximately $5 a ton on shipping.

Canadian Ore Deposits

Five years ago active interest was developed by business groups in Canada and the United States in the iron ore deposits in Quebec and Labrador. The explorations to date center in an area 340 miles north of the 300-year-old town of Seven Islands on the north shore of

[1] The present Seaway Bill which Senator Aiken of Vermont and Senator Moody of Michigan are trying to attach as a rider to the pending foreign aid bill, permits tolls up to $1.25 per ton.

the St. Lawrence River. To date the geologists say they have located 400,000,000 tons of ore with predictions of many times that amount in the vicinity. The ore is higher grade than that remaining in Minnesota. Capital has been provided, mining and railway franchises have been procured, and the railway is under construction.[2] Had the Seaway plan of the 1932 treaty not been rejected, the United States and Canada would have had the benefit of the navigational facilities and of the power during World War II and each could now look forward with confidence to an uninterrupted flow of high-grade open-pit ore coming up the St. Lawrence River in submarine-proof waters to be mixed with the ore coming down the Lakes from Minnesota.

The writer has made two trips to the Quebec-Labrador area, has talked to the engineers and geologists, has seen the ore lying close to the surface, the systematic way in which the drill holes are laid out, samples collected, chemical tests made, and records kept.

Construction of the railroad is under way. Bulldozers, tractors, dirt and rock moving equipment have been set down by enormous planes at frequent intervals along the right of way. In three years ore will be coming out. But the only way the United States mills will be able to get it, at that time, will be by boat to Montreal and by rail from there, or by boat to the Atlantic Coast cities and thence by rail to the Great Lakes Basin.

Iron, Coal, and Cheap Transportation

Without iron ore in Minnesota, and coal in Pennsylvania, and water transportation in between, how can any observing person, regardless of his vocation or station in life, believe that employment and tax-providing business productivity in the Great Lakes Basin could have developed to a point where the corporation and personal income taxes are greater than one half the total for the 48 states and territories of the United States?

All business in the Great Lakes Basin, containing one third of the population of the United States, is indebted to these three natural resources: iron, coal, and cheap transportation. More than that, business all over the country is benefited, for the Basin's production and its consumption are greater proportionately than its population. It buys from outside; it sells to all the world, calling in each instance for labor in making and transporting the goods involved in each transaction.

With the Seaway built, the Great Lakes steel mills would have available Quebec and Labrador ore of high quality in three years from now. They could get all the ore they needed to supplement the Mesabi ore at approximately the same transportation costs now required to bring down Mesabi ore. If the iron content in Labrador ore is 25 per cent greater it might be even cheaper. In any event the future cost of steel in the Great Lakes and Mississippi River Basins would be comparable to the cost on the Atlantic Seaboard. The economy in the Basin would be stabilized, Canada would be benefited, and Minnesota's open-pit ore business would continue for a long time to come.

Need for More Power

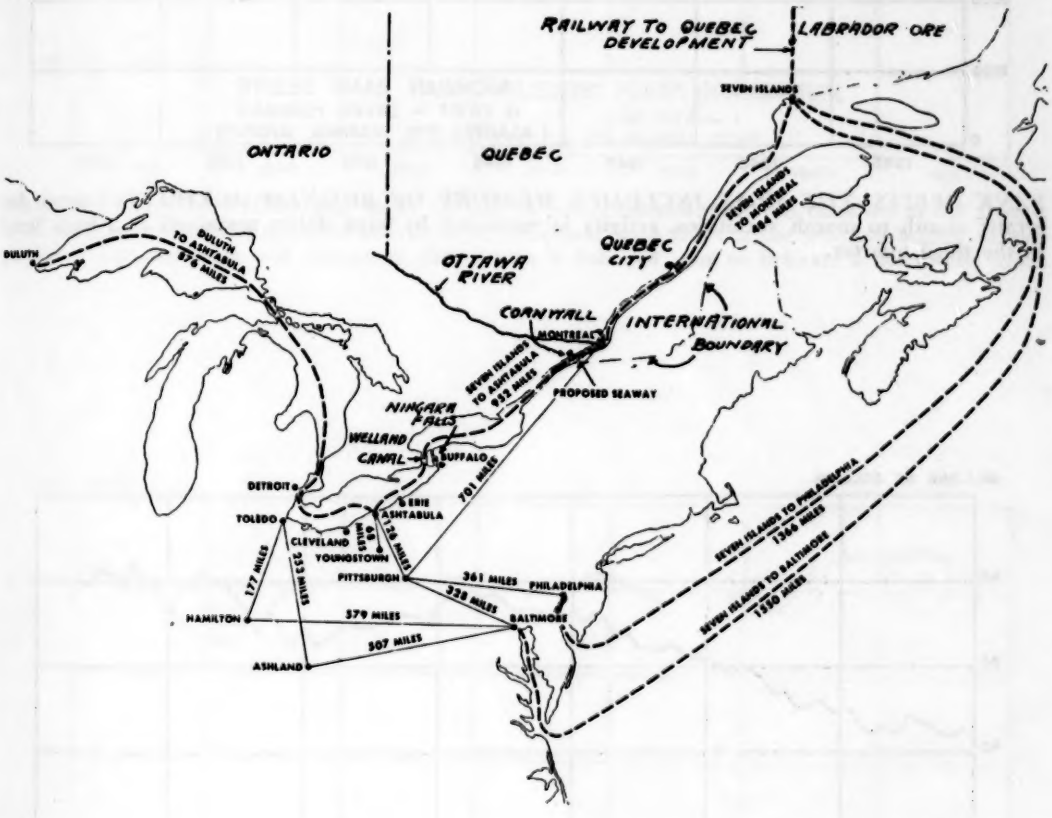
Since 1934, when the former treaty was defeated, the power demand in New York State has increased as was predicted. New steam plants have been built in an attempt to satisfy the demand, in spite of which there was a shortage of power in New York during the war. The population decreased by migration to localities with more power. With those who remained, production was carried on in a limited manner with power imported from Canada. New York State industry is still importing power, the exact amount being a military secret. Canada's demands are increasing, too. Soon she will cease to export that which her own citizens will need. Mr. Stalin would undoubtedly hate to see this addition to our transportation system, small as it will be percentagewise. He would view with some dismay, at least, the cooperation between private capital and two sovereign nations making acces-

[2] By the Iron Ore Company of Canada, G. M. Humphrey, Clevelant, Ohio, president.

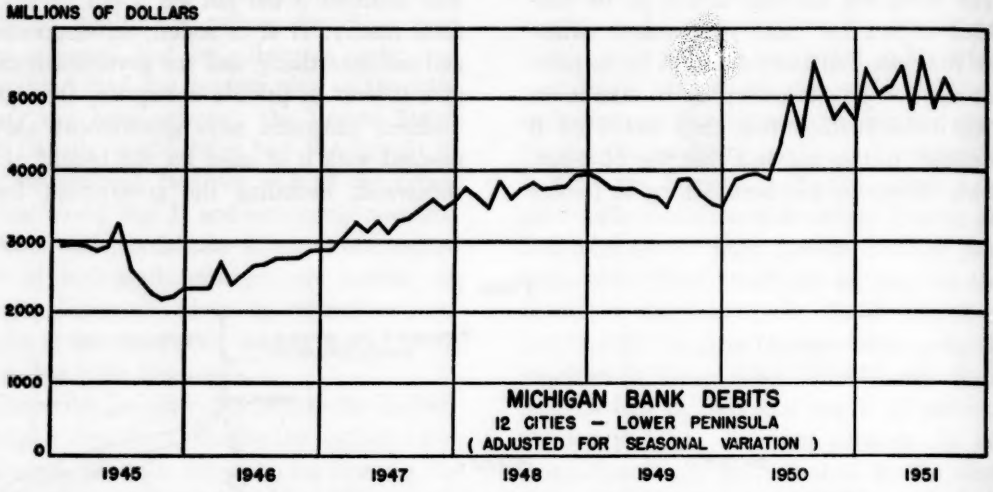
sible millions of tons of iron ore to the Arsenal of Democracy and at the same time putting an additional 2,000,000 horsepower of electrical energy to work either in war or in peace.

The foregoing analysis is not to be considered a plea for more government ownership. It is just that there seems to be no practical way for private enterprise to take it on, as has been testified that they would do if permitted. But in the fact that for 30 years, private enterprise has been willing to finance this power and navigational project, we have the best overall proof that the project is sound. It would not be sound if those it would serve were not benefited thereby, and if those who financed it did not get a fair return on their money. If it is sound, self-supporting, and self-amortizing, and the government can't give it over to private enterprise, then good business judgment says government should proceed with it at once for the benefit of all concerned, including the government itself.

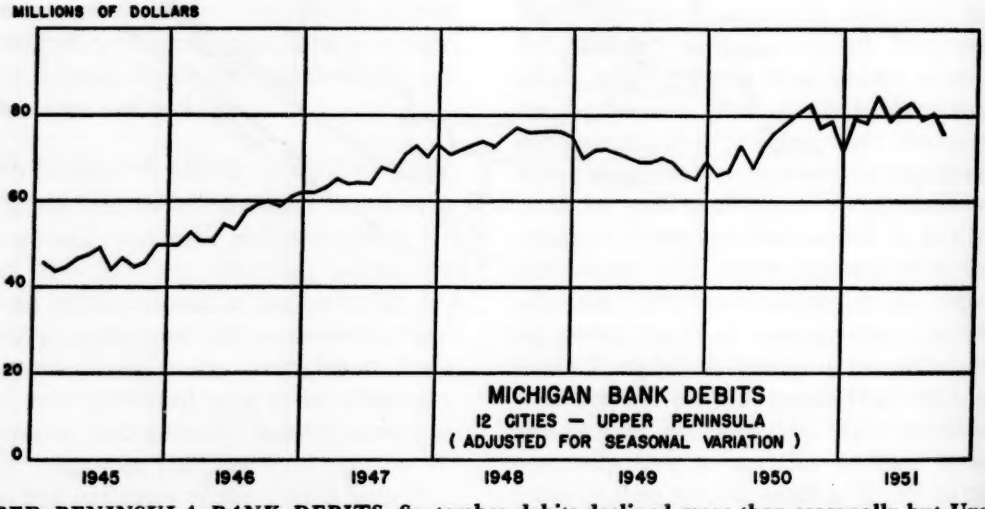
Plate I



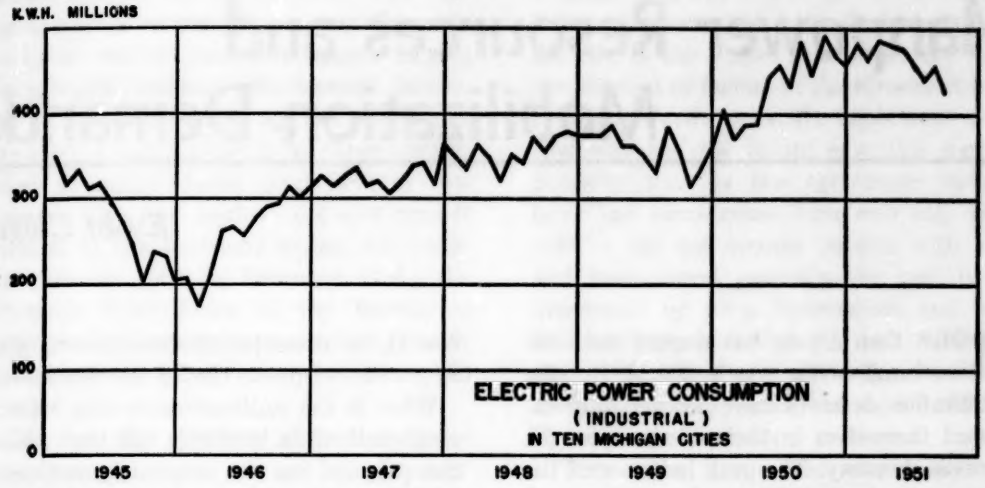
Michigan Business Indicators



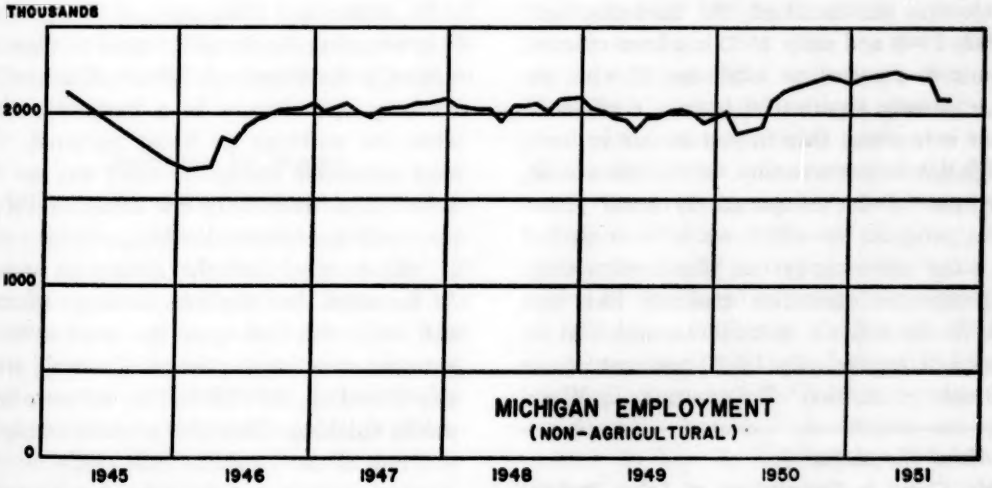
BANK DEBITS—THE MOST INCLUSIVE MEASURE OF BUSINESS ACTIVITY—Except for erratic month to month variations, activity as measured by bank debits remained at a high level in the third quarter.



UPPER PENINSULA BANK DEBITS—September debits declined more than seasonally but Upper Peninsula activity is still at a high level.



POWER CONSUMPTION—The slight decline in power consumption was confined to the Detroit area while other areas of the state showed some increases. Since this decline was due largely to temporary work stoppages and inventory closedowns, it does not seem to indicate a downward trend.



EMPLOYMENT—Third quarter employment continued high with the final adjustment to defense production still ahead.

The principal effects of the defense program on the American economy, and the outlook for the future.

Manpower Resources and Mobilization Demands

Ewan Clague

MORE than a year has elapsed since the outbreak of the war in Korea. But the mobilization demands have not yet fully expressed themselves in their effects upon the domestic economy. The peak influence of the present program, excluding any subsequent enlargement or speed-up, will not be felt until some time around the end of the year 1952. Therefore, the stresses and strains which the nation has experienced thus far are only a reflection of what is to come.

Nevertheless, the American people generally are convinced that significant economic effects have already taken place. Prices have risen, production has increased, the unemployment of late 1949 and early 1950 has been reduced almost to a peacetime minimum. If what we have already experienced is only a token of what is to come, then indeed we are in for a rough time in our economy. On the other hand, why should the comparatively small armament program on which we have embarked rock our economic system so severely—can't a prosperous expanding economy like ours take in its stride a mobilization which at its peak will require only 15–20 per cent of our national production? By contrast, in World War II, we at one period were devoting about 50 per cent of production to war demands.

What is the explanation of this apparent contradiction? In brief it is that the mobilization program has not been solely responsible for the business boom of 1950–51. The demands of the civilian economy, both business and consumers, have played the greater part to date. The problem of the future is simply this, what sector of the economy must give a little in order to accommodate the demands of the mobilization program?

Developments Since Korea

To understand the nature of this problem it is necessary to sketch in brief outline the economic developments since Korea. The economy was already in a business revival when the outbreak in Korea occurred. The most noticeable immediate effect was the rise in prices, particularly of raw materials. People can recall the spectacular jumps in the prices of rubber, wool and the nonferrous metals. At the same time the consumers got alarmed and swept the shelves of the retail stores in a nation-wide buying spree. So retail prices also firmed up. All this had its influence upon public thinking. Thus the original legislative program of the President called only for production controls, but the tide of public poinion was such that the Defense Production Act, by the time it was passed by the Congress, contained both wage and price controls.

About the author—

Mr. Clague is Commissioner of Labor Statistics in the U. S. Department of Labor. This article is a summary of an address delivered by him August 27, 1951, before the School of Banking at the University of Wisconsin, sponsored by the Central States Conference.

After the first flurry of buying, things quieted down a little; bumper farm crops helped to keep food prices level, and so the Consumers' Price Index of the Bureau of Labor Statistics was slowed down in its rise. But the entry of the Chinese into Korea in November set off another consumer buying flurry, which, coupled with seasonal factors, sent retail prices sharply upward—the Index rose about 3 points a month for three months. Prices of manufactured goods and of raw materials also rose further; the spot market prices of 11 raw foodstuffs topped 400 (August 1939 = 100) in February 1951; the Wholesale Price Index of the Bureau of Labor Statistics crossed into new high ground; the Consumers' Price Index went above 180 (1935–39 average = 100).

This was the situation when the "price freeze" was clamped on in late January. The result of the freeze, taken in conjunction with a number of other policies and factors, was that many prices receded from their peaks. Spot market prices are nearly all considerably below their 1951 highs, and wholesale prices have been declining for several months. Consumers' prices continued to advance slowly, but the net change was very small. From February to July the increase in the Consumers' Price Index was less than 1 per cent, which is close to reasonable stability. In June the index declined slightly for the first time in 16 months.

Increases in Wages

Wages in the meantime were rising, following prices up. Most of normal annual wage-setting by collective bargaining took place in the first half of 1950, before Korea. There were increases in many industries, but these were generally modest in amount. However, in the second half of the year, a new development occurred—widespread reopenings on contracts already made. The reason for this is interesting and important.

Three years ago, in May, 1948, the General Motors Corporation signed with the United Automobile Workers (CIO) and some other unions an agreement which provided, among several novel features, that the wages of the workers would be adjusted every 3 months on the basis of the rise or fall of the Consumers' Price Index of the Bureau of Labor Statistics. This idea of escalation was not new in the United States, but the whole combination of factors in the agreement made it unique. Furthermore, the importance of the Company and the unions gave this contract publicity such as few agreements between labor and management have ever had. However, it did not become popular with labor and management generally—in fact, it was denounced by some businessmen and labor leaders. When the contract was renewed in May, 1950, there were still only a handful of firms and unions which had copied the idea of automatic escalation.

Then came Korea, and almost overnight the attitude changed. With the upsurge in prices after Korea and particularly in the late autumn, there was a rush to tie wages to the Consumers' Price Index. By the end of 1950, over 1,500,000 workers had their wages tied to prices by means of such contracts; by early summer of 1951, there were over 3,000,000.

Meantime, the Wage Stabilization Board in early 1951 had to formulate a policy on wages in conjunction with the price freeze. It is sufficient here to indicate that their final decision was (a) to limit wage increases to a pattern closely related to the rise in the Consumers' Price Index since January, 1950, and (b) to recognize automatic escalation within the limits of the over-all policy. This policy was finally cemented in the recent decision of the Board to apply these principles to all wages subject to stabilization. Wages have now been fully and closely tied to consumers' prices, with the further proviso that productivity increases (in wages) are permitted if they do not require a price increase.

Production and employment have also advanced to prosperity levels during the past year. Unemployment, which reached a post-

war peak of 4,700,000 in February, 1950, had fallen to about 2,000,000 in the summer of 1951. Even with spotty unemployment in some areas, such as Detroit and some of the shoe and textile towns in New England, the national picture today is one of high production, nearly full employment, comparatively stable prices and slowly rising wages, with some of the wage increases being of the catching-up kind.

Impact of Private Spending

The most significant point about all this is that, while it may have been touched off by the mobilization program and the Korean War, it was powered by the demands of the private economy, namely, by businessmen investing and by consumers spending. Despite all the discussion about government spending and unbalanced budgets, the Federal Government came out of the fiscal year ending June 30, 1951, with a substantial cash surplus. So in terms of its own direct spending, government has been a mildly deflationary influence during the past year, not an inflationary one.

Of course, government activities and policies have an *indirect* effect upon the private economy. They can and do influence the activities of businessmen, wage earners and consumers. Businessmen were encouraged to expand their capital investments, not only by direct government invitation but also by the prospects of the market. This has been the heaviest private investment year in our history. Investment creates a demand for both labor and materials. Employment in the construction industry reached an all-time peak in the summer of 1951. Consumers too expanded their demand, partly by spending a somewhat higher proportion of their incomes and partly by extending their consumer credit. Thus both businessmen and consumers increased their demands upon the economy at a time when government was also raising its demands (even though the latter were more than covered by government income). The result was that total demand exceeded the available supply of goods, and prices went up to make the balance.

Recession or More Expansion?

During the past six months something like a temporary balance has been achieved, but it is an unstable and precarious one. It might be upset either on the up or down side. We might pause for a moment to consider the latter possibility. Inventories are now high, some industries are having trouble with their sales, higher taxes are about to be imposed, people are becoming more cautious in their spending. If the Soviet peace offensive is actively pushed, if international tensions relax, if our mobilization program is reorganized downward, then of course the economy might slide into a mild and temporary recession of the 1949 variety.

But at present the probabilities seem stronger in the opposite direction. As indicated earlier, the mobilization demands are far from their full peak. Actual spending on this program is scheduled to increase from a rate of $1.5 billion a month to $4 billion a month—an increased annual rate of $30 billion. Stated another way, our mobilization demands will increase within the next two years by about 10 per cent of the national income. This is a very large "bite" to take out of an already peak-level economy. Some of this, of course, we can get out of increased production; but we do not have enough materials, plants, and skilled manpower to get it all without curtailing the civilian economy.

Manpower Needs

At this point it is necessary to analyze one factor which we have passed over lightly so far, namely, manpower. In the period of accelerated defense preparation that lies ahead, our manpower resources will be subjected to greater strains than at any time since the end of World War II. By the end of 1952, about 12 million persons, or more than one out of every six in the American labor force, will be engaged in work connected with the national defense effort. During this period, in order to minimize infla-

tionary pressures, we also will have the task of providing the manpower needed to maintain production of civilian goods at the highest possible level consistent with available material supplies.

At the present time, we are relatively close to meeting our military manpower goals. In the twelve months following the outbreak of the Korean War, the net strength of the armed forces of the U. S. more than doubled, and was brought to a level only a few hundred thousand short of the announced goal of about 3-½ million for the end of fiscal 1952. It will be necessary to replace large numbers of reservists and other personnel scheduled for release during the current fiscal year, as well as to make the planned additions to net strength. However, under the Universal Military Training Service Act of 1951, the pool of young men qualified for military service has been expanded to the point where scheduled needs can be met without undue strain.

In contrast, we are still a long way from meeting peak manpower needs for defense production and supporting activities. It has been estimated that this program at its prospective peak will require about 8,500,000 men and women. These over-all manpower needs can be met within the framework of a free labor market by labor force expansion, by shifts of employed workers from non-defense to defense work, and by maintaining the unemployment at its current low levels. However, we may expect to encounter real difficulties in meeting the labor requirements of particular industries, occupations, and areas where defense hiring will be concentrated.

Manpower Supply

Between the end of 1950 and the end of 1952, normal growth of the labor force, because of population increase, veterans finishing school, and the postwar uptrend in the employment of women, should provide a net gain of almost two million workers. We may anticipate, in addition, a net inflow of close to 1-½ million "extra" workers because of additional increases in the labor force participation of adult women, youth, and the handicapped and older workers. Past experience indicates that labor force expansion of this magnitude can readily be accomplished in a period of expanding employment opportunities, provided that the hiring standards and training practices of industry are revised to make fuller use of older workers, women, and other reserve groups.

As the rearmament program gains momentum, further cutbacks in civilian metal-using industries, such as automobiles and television, and in non-defense construction will provide additional manpower for defense needs. Between the fourth quarter of 1950 and the fourth quarter of 1952, it has been estimated, reductions in the number of workers directly or indirectly engaged in the production of civilian goods will yield, on a net basis, about 3-½ million workers for defense activities.

For the fourth quarter of 1952, we have projected unemployment at 1-½ million, one-half million less than in the corresponding period of 1950, and about equal to current levels adjusted for seasonal factors.

Possible Increase in Hours of Work

One other factor can be kept in reserve—the increase in hours of work. As of July 1951, industry was still working only about 40 hours on the average, as shown by the Bureau of Labor Statistics' reports on hours and earnings. This means that there was some overtime beyond 40 hours in some plants and in some industries. However, it is still small as compared to World War II, when average working hours rose to about 46 per week at certain periods of time. Each additional hour of work in manufacturing industries is equivalent to an additional labor force of about 400,000 men. Consequently, we could obtain the equivalent of 2 million or more workers in manufacturing by moving to the 48-hour week and obtaining a net weekly average of 45-46 hours.

This program, however, should be held in reserve for emergencies. British experience in

World War II shows that over a period of a few months in time of crisis the labor force can work longer hours without too much loss in productivity per hour. However, over longer periods of time, increased fatigue and absenteeism cut down the output until finally the longer hours will produce no net result. Great Britain found it necessary to cut back the 64 and 72 hour weeks to a maximum of 54 hours. The great advantage of longer hours is that it can be used flexibly and specifically to meet temporary bottlenecks. So it should be the last resort for a full war emergency. The preparatory mobilization period, such as we are in now, should be used to expand the labor force, to train workers for higher skills, and to put machinery and equipment in shape for the full emergency. When that time comes, increased hours of work can yield significant results in increased output.

The Production Race

This is the short-run problem. In the long-run, the contest between Communism and Capitalism may turn out to be a race for production, not a contest of military strength. If no world war breaks out in the next two or three years, then the defensive strength of the Western nations may be such that a period of military stalemate could exist for 20 years or more. During that period the question would be which side would grow relatively stronger. Could the present tremendous lead of the United States and the Western nations in production and standard of living be maintained? Or, will Communist output gradually creep up?

The answer to this question will be found in the future productivity of the labor forces of the free nations. In the United States in the past, productivity in manufacturing industries has been known to increase at a rate of 3 per cent per year. That is, the output of industry could be increased 3 per cent each year with the same amount of labor hours. This increase is due not only to the skill, training and experience of the workers, but also to the capital equipment installed and the enterprise and initiative of management. Can the United States in the future maintain this rate of productivity?

Conversely can the Soviets and their allies increase at a faster rate than this? There is plenty of evidence that the Soviets have kept down consumer goods production and maintained a low standard of living in order to obtain a maximum reinvestment of capital. In other words, they are putting a large proportion of their output, perhaps nearly a third, into capital goods for future production. This could result in substantially increased output in future years despite a very low level of productivity of the Soviet worker today. It will not do, therefore, for the American nation to rest on its present laurels in the production field. We now have the most highly productive labor force in the world and the best equipped industry. It will be necessary, however, for us to maintain past rates of performance if we are to keep the lead we now enjoy.

The history of the world has always been that free labor and a free enterprise system have always out-produced slave labor and controlled enterprise. It can be done again if sound production policies are followed. We must maintain a high production economy, which means primary attention to new capital investment and to the training and development of our labor force to its highest potential skills. Under these policies the standard of living will take care of itself—there will be goods and services to provide a reasonable supply of butter along with the guns. On the other hand, if we attempt to maintain at all hazards a short-run maximum standard of living and a high consumption economy, there is great danger that the Communist economy of Soviet Russia would eventually catch up and surpass us. After the crisis of the next two or three years, the primary attention of the American people must be directed to this major problem.

Banks, too, have selling problems; and scientific analysis can increase markets, improve efficiency, and provide greater assurance of profits.

Banks Need Marketing Research

Donald R. G. Cowan

MANY people think that banks have no selling problems, that in fact, they are something like purchasing agents—they have to be sold on making a loan, and that taking a deposit or cashing a check is a favor. These impressions are often gained from the austere presence, the cold gaze of the old-time local banker, confirmed by his dominating industrial and political connections, and his apparent mysterious power to create money out of nothing.

Such notions are false. Banks have selling problems—yes, competitive selling problems which are among the most difficult to solve because bankers sell intangible services. Banking sales volume fluctuates with economic cycles, as does almost all business, unless it be the undertakers'.

In recent years, high business activity, accentuated by credit expansion and inflationary tendencies, has created such a tide of monetary transactions that effort to sell banking services has often seemed to be quite superfluous. As one banker asked, why should my bank establish a branch when we have more funds than we can loan? But the high tide of activity creates its own problems and merely obscures the difficult shoals in selling banking services to be encountered again when the tide recedes. These shoals are the continuing problems of managing the sales of banking services.

Costs have risen despite curtailment of some banking services. Payrolls, the major item of expense, have increased tremendously because it has been necessary to pay higher salaries, to expand the staff, and to shorten the hours of work. They cannot be reduced proportionately when a major decline in bank transactions takes place.

Much of banking involves personal contacts with the public, and the great over-all problem in selling banking services is to increase the productivity per employee sufficiently to offset the permanently higher level of expenses. Although some relief may be found by the mechanizing of record keeping, the main avenue of improvement is through planning the bank's selling activities based on the findings of marketing research.

Marketing research may be applied to the whole area of selling bank services. It includes the development of information about present and potential customers, about loan policies and services desired, about promotional methods and performance, about costs associated with various services and types of customers, and about the services, charges, promotional appeals, and public favor of competing banks.

Here are some of the specific questions which research may help to answer in providing a basis for planning more productive selling effort.

I. *How big is the market for a bank's services?*

(A) How many people use bank services?

About the author—

Dr. Cowan is Professor of Marketing in this School. He has had a long career of varied academic and business experience. Before joining the Michigan faculty, he headed his own firm of economic and market analysts in Cleveland, Ohio. He is a past president of the American Marketing Association; and has written extensively on marketing research.

(B) What kinds of people patronize the different banks?

(C) What bank services do they patronize?

(D) What will they pay for different services?

(E) What are the differences in patronage motives and preferences of different patrons, e.g. the home, the industrial firm, the professional man?

II. *Where is the market?*

In what areas is the demand heaviest? How concentrated is it? How permanent is it?

III. *How does the customer of the individual bank like its services compared with other banks?*

(A) Does he or she like the bank's facilities; its employees; its methods?

(B) From what officials or departments has he sought advice and with what satisfaction and confidence?

(C) In what way would he or she like to see the facilities and service improved?

IV. *What is the most profitable way to sell the bank's services?*

(A) What methods are now being used?

(B) Based on past experience what will it cost and what will be the net profit in reaching different segments of the market, such as different types of customers, various kinds of service, and quite different geographic areas?

V. *How well does the bank's organization meet the market requirements?*

(A) What are the job requirements?

(B) How should personnel be selected?

(C) How should they be trained?

(D) What selling methods should be taught them?

(E) How can they use their time most effectively?

(F) How should they select prospects?

(G) How should they be paid?

VI. *Is advertising giving maximum support to the sales effort?*

(A) What are the most effective advertising appeals?

(B) What are the best media for the particular campaign?

(C) What are the best media to reach particular segments of the market?

(D) How can the advertising and selling effort be coordinated?

(E) How can advertising results be evaluated?

These are pertinent questions. In developing answers, there are different methods which the versatile research man will apply according as they best meet the needs of a particular problem.

I. *The Survey or Poll* is the method whereby selected people are asked certain questions; and the answers are tabulated according to income, occupation, age, sex, marital status, and other characteristics. Since service is all that banks have to sell it is pertinent to learn (A) how the public regards the services of banks as a whole in each community and (B) what people think of each bank. Well-conducted surveys provide the desired information. A notable example was a survey made in Ann Arbor in May, 1951. It was based on interviews with a substantial number of Ann Arbor residents, scientifically chosen to be representative of all residents. Some interesting facts were established which should be very valuable in determining future promotional programs for the local banks.

Asked what services a good bank should offer, the majority were ignorant of all but checking and savings accounts. The following table lists the services that were mentioned.

Services mentioned	*Percentages of total mentions*	
	Men	*Women*
Checking account	90%	78%
Savings account	83	77
Loans and mortgages	40	18
Home building and buying loans	33	11
Financial advice	31	19
Small personal loans	27	12
Cashing checks	23	29
Safety deposit boxes	21	22
Car loans	21	6
Christmas savings club	6	13
Travelers checks	4	10
Drafts	4	0
Cashiers checks	4	5
Miscellaneous	8	11

As may be noted, men and women differ in their recognition of banking services. More women than men suggested Executor and Trust departments but the total number was so small that it had to be included in "Miscellaneous."

The total patronage of each bank and branch was indicated. In order of importance, customers like their bank because of friendly service, convenient location, quick service, friendship with individual employees, and other miscellaneous reasons. The chief dislikes were high charges, slow service, and unfriendly service. A large majority felt that Ann Arbor banks were average or above average in performance of their services; but some preferred to patronize out of town banks.

That each bank has little excuse for complacency was indicated by the fact that nearly one quarter of their present customers had previously patronized other local banks and transferred because of inconvenience, poor treatment, dislike of personnel, or to obtain a specific service, such as a personal or mortgage loan.

Opinions relating to specific banking services were also obtained. In financing the purchase of a car, a majority prefer to borrow from banks, while finance companies and dealers rank second and third. Similarly in buying a home, two thirds prefer to borrow from a bank, while government agencies and building and loan associations rank second and third. For personal loans, banks rank first; friendly individuals are second, and finance companies a poor third. In all of these, the lower interest rate is the most important reason for patronizing a bank.

From these and related facts, a wide-awake bank executive in Ann Arbor should speedily conclude that his bank needs to tell both the public and its customers about the specific services it offers. For instance, financial advice usually is a free service, yet less than one third of Ann Arbor residents think of it as a service which a good bank should offer. When more than one half of the public do not include the making of loans among the services a bank should offer, it is time for banks, in their own interest, to resort to more aggressive public relations and promotional effort.

This method of market analysis could be applied in many specific ways to the problems and needs of a bank in any community. The facts obtained enable the management to evaluate its performance, to focus its effort on needed improvements, and to formulate new policies and programs with greater assurance of success.

II. *Correlation for Measuring Market Potentials by Areas* is a second method of market research available and useful to bank management. By this method, statistical information, such as population, income, payrolls, etc., in counties, cities, and parts of cities may be developed from dependable sources such as the United States Census, and correlated with the bank's corresponding regional records of activity for different departments. In this manner, measures of the effects of diverse marketing conditions on the distribution of bank volume may be obtained. By combining them, potentials may be set up and regional performance may be measured. Also, opportunities for extension and better distribution of selling effort may be found.

A local bank may tabulate its deposits by geographic areas, or census tracts, and learn much by this kind of analysis. In determining whether and where to establish new branch offices, this information, coupled with that obtained by special surveys in the areas under consideration, will do much to remove the risks attached to such decisions. The cost of one branch failure, both tangible and intangible, will pay the expense entailed in market research to determine in advance whether the extension of the bank's facilities in that location should have been made.

III. *Distribution Cost Analysis* may also be applied to different types of customers, bank departments, and branch banks in order to determine where profits are being earned and where costs are out of line with earnings. Examined by these methods, some customers and banking activities are found to be more

profitable than others, and losses in performing various services are revealed which have been covered up in the general bank records. This information is valuable in enabling management to adopt policies and to take specific steps for improving profits.

IV. *Studies of Time and Methods of Bank Representatives and Advertising.* Among a bank's representatives, there is need for careful study of the use made of their time and their methods of contacting customers and prospects. The purpose is not, in any sense, to police their activities but rather to enable them to do an effective job. In selling commodities, there are wide variations in the time required to cover different areas and different types of customers, and to sell different products. Sometimes, travel time may be reduced. Not infrequently, a salesman may be imposed upon and kept waiting to see a customer or prospect. Sometimes, too much time is spent in making reports. Studies show that actual time spent in selling customers ranges between 15 and 45 per cent, yet this is what the salesman is hired to do. The same general patterns apply to the activities of the bank salesman no matter whether he meets customers outside or inside the bank. The facts enable management to develop plans for increasing the salesmen's selling time.

It is essential also to study how the limited selling time of the bank representative may be used more effectively in selling the bank's services. Usually, the ineffective salesman takes more time than the good salesman. Studies show that there are a few all important methods in getting business, and that results vary according to the proportions in which they are used. The fact is that usually these effective methods are used to such a small extent that there is great need for developing them and educating representatives to use them.

By similar appropriate studies, the effectiveness of advertising appeals may be measured and the use of advertising coordinated with selling effort.

Who Should Do Marketing Research?

Who should do marketing research for banks? The important tasks already outlined indicate clearly that he is probably not the handy man without definite assignment or the clerk with a flare for digging out figures. Such appointees are sometimes successful; but as a general rule, these men do not understand the fundamentals of research techniques.

A well qualified marketing research manager or consultant should have training and experience other than that gained solely in a bank. Besides a wide variety of educational prerequisites he should have specialized training and experience in dependable research methods. He should acquire some insight into current banking service problems and should possess the priceless ingredient of a fertile imagination for remolding and improving present services along profitable lines. Finally he must be able to win the confidence of bank management and convey in practical terms his vision of improvements to management personnel and others.

If research findings are to be trustworthy, they must be impartial and objective. To make these qualities attainable, the research activity should be directly under the chief executive officer to whom the findings may be reported fully and fearlessly.

This important position is justified because research is merely a tool of management, and may be of great service only to the extent that an open minded research attitude pervades executives in performing their duties.

Management is, of course, the mainspring of of an efficient banking organization. Managerial ability manifests itself continually in its choices between various courses of action, its relating and knitting together of various steps taken, its regular evaluation of the results of its policies and programs and its representation of the personality and integrity of the bank in dealing with its customers, its employees, and the public. Like the skilled captain of a great ship, management must chart a course for the

particular bank and set the whole organization on plans to go forward, even if the aim is merely to maintain its present position in the banking community. To drift complacently is to court certain disaster.

Like the good helmsman too, once the course is set and underway, management must regularly make soundings to evaluate the performance of its policies, programs and personnel, as well as to correct or change the course promptly when the need arises in each phase of the economic cycle and in each department and location. The need will certainly arise during the years ahead. And again like the good ship captain whose passengers vie for seats at the captain's table, bank management must attract the banking public by its personality and integrity in its dealings with customers, employees, and the public. Bank executives cannot escape these important functions and responsibilities. When they perform them well they deserve a key position in a free economy and as much honor as the leaders in the sciences and professions.

Foundations of Good Bank Management

What is the foundation of good bank management? Knowledge, of course, is fundamental. Experience is a great source of knowledge, but in the large bank, with a complex and changing market for its services, the obvious limitations of experience are the shortness of human life and the comparative inability of the human mind to sift out and weigh with a practical degree of precision the many major and minor influences which determine profitable bank performance.

Knowledge gained solely by experience involves a very slow and expensive process. Prudent management bases its judgment and decisions not only on experience but also to an increasing extent on scientifically developed facts. Industry already depends for guidance on its advisory staffs of research chemists, industrial engineers, job analysts, personnel experts and market researchers. Personal service organizations such as department stores and insurance companies are using more scientific measurement in their selling operations, and banks will inevitably move in the same direction.

The outstanding bank president of the future may not be the sharp financial manipulator, the shrewd real estate trader, or the keen commercial credit manager, because these may be hired as assistants. Rather his work should be to plan a profitable program for marketing the bank's services in the community; to educate and motivate his staff of assistants to apply his plans successfully; and then to control and evaluate performance under changing conditions. In common sales parlance, his task should be to "plan the work and work the plan."

Thus, while a chief executive should possess knowledge and experience in bank operations, other qualifications such as leadership, breadth of vision, constructive imagination and sound judgment are essential to a full measure of success. Not only does he need some characteristics of the analyst but he must rely in the future upon competent marketing research to provide him with the facts upon which to base his decisions, plans, execution of programs, and subsequent evaluation of performance.

In conclusion, banks should give serious attention to market research, what it is, and how it may aid management in solving increasingly complex problems. A few useful methods of research have been indicated. Now is the time to start such work because time is required in its development. Gradually this open-minded objective approach will permeate the thinking of more bank executives as they face the problems of expanding their bank's effectiveness in their respective communities. In the years ahead, there will be a real need to bring more science into the sellling and advertising of bank services—and with it, greater assurance of profit.

Some of the purchasing policies, procedures, and methods followed by municipal buyers create special problems for vendors; and are matters of mutual interest to both parties

Selling to Cities

Charles N. Davisson

CITY purchasing officials sometimes express dissatisfaction with the marketing policies of manufacturers who sell the municipal market. Some procurement officials feel that on certain requirements they have been required to buy from local representatives at a higher cost than could be obtained if the order could be placed directly with the manufacturer. In other instances procurement men have felt that the response to bid notices has been unsatisfactory. On the other hand, manufacturers have expressed dissatisfaction with municipal procurement procedures and policies. A frequent complaint is that there is too much red tape involved in handling municipal orders. Others feel that bidding requirements are too rigid and cause unnecessary costs.

Such sales friction is costly. To the seller, customer dissatisfaction reflects a failure to realize the full profit potential of the account; to the buyer, supplier dissatisfaction means inefficient purchasing and higher costs of procurement. While no transaction can be completely free of friction, it surely is evident that sales and procurement officials have the common objective of eliminating unnecessary irritation between buyer and seller. In the municipal market such sales friction is not solely the joint concern of suppliers and procurement officials. It is of direct concern to the tax-paying public as well.

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Mutual Interests of Buyers and Sellers

It is a truism that municipalities *want* to be served adequately by manufacturers. It is equally true that manufacturers *want* to give good service. Specifically municipalities want: (1) responsible sources of supply actively bidding on the cities' requirements; (2) a continuous and adequate supply of products needed; (3) a reasonable price for the products purchased commensurate with quality; (4) adequate information on merchandise and how to use it effectively; and (5) follow-up service in the case of technical products such as machinery and equipment. While this list might be increased substantially, still these are the most important requirements for efficient municipal purchasing.

There is no conflict between buyer and seller as to whether these requirements are proper. Both parties are in fact striving for these same basic objectives. Yet on certain occasions dissatisfaction is voiced from both sides. Some suppliers feel that municipal procurement organizations and policies frequently make it difficult for them to adequately serve the buyer's needs. Some buyers believe that manufacturers frequently adopt policies which make it difficult for them to buy wisely. Since there *is* a mutuality of interest it seems evident that there is needed, on each side, a better understanding of the problems faced by the other party. If buyers more fully understood the difficulties of manufacturers

in selling their market, *and* if manufacturers more fully understood the buyers' requirements, this sales friction would be reduced, to the advantage and profit of both.

In order to determine the problems faced by manufacturers in selling the municipal market today, a quick survey was made among approximately thirty manufacturers. The results are not offered as the findings of a formal, scientific questionnaire. The companies were simply asked to comment concerning the difficulties they have experienced in selling to municipalities, and the following summary of the responses suggests the nature of the environment in which municipal purchasing takes place. Some of the comments are admittedly controversial but even so they are significant for those purchasing officials interested in improving the relationships between buyers and sellers in the municipal market.

Characteristics of the Municipal Market

The responses received clearly revealed that manufacturers traced many of their difficulties in selling to certain specific characteristics of the municipal market. First, there are many buyers of dissimilar size; the market includes cities of only a few hundred population as well as the large metropolitan centers. Second, there are many small buyers who are difficult to contact. Moreover, they furnish only small orders, and the costs of selling to them are high. We know that the costs of solicitation, order processing, packing, and delivery all vary directly with the size of the order, and the costs are relatively high for small municipal orders. Third, there is a great diversity in the products customarily purchased by municipalities; as one man said, "Everything from fish to fire boats." Thus, there is little specialization in purchasing except by large cities; and as a result, the municipal market is in some instances a relatively uninformed market. Fourth, most of the products purchased by municipalities have a much broader market in that they are also sold to the industrial and consumer market. Admittedly, products such as parking meters and street lighting fixtures have no other market but the municipal market. However, such products are few. Fifth, the municipal market is a wide-spread market geographically and there is considerably less concentration than in the industrial market. Finally, the municipal market is difficult to deal with because (a) there are many people in authority and often there is little continuity in office; (b) municipal regulations often require that bids be submitted and that the award must go to the lowest competent bidder; and (c) unfortunately, political influence often enters into buyer-seller relationships. Therefore, the municipal market cannot choose its supply sources as freely as does the industrial market.

While these characteristics of the municipal market cause different types of problems for individual companies, the pattern of the replies showed the group as a whole to have common problems caused by: (1) the great lack of uniformity among cities in their organization for purchasing, (2) the varying and restrictive purchasing procedures as well as restrictive bidding practices followed by municipalities, and (3) various weaknesses in the use of specifications. Most companies did not feel that they faced any real problems in connection with direct purchase, and there were no stated objections to group buying by cities.

Municipal Purchasing Authority

Particularly in smaller towns, vendors have difficulty in finding out who has what responsibility and authority in buying. Frequently titles are nonexistent or if there is a title it may be misleading. Sometimes the public works manager assumes procurement responsibility; in other cases the city clerk buys the full range of requirements. In smaller towns there is seldom any formal organization for buying, and not infrequently the city council feels required to pass on all purchases. Effective selling and servicing of municipal requirements is difficult when lines of buying authority vary so widely from town to town; it is

costly to vendors to have to spend time and energy learning these various procurement arrangements. And municipal officials should recognize that such selling costs mean higher prices to buyers.

An additional complexity was mentioned by one manufacturer. In smaller towns buying is generally done by elected officials, and the change in officeholders means that purchasing is done by officials who have small chance to build up any real procurement experience; the newly elected official seldom finds it possible to profit from the experience of his predecessor. In addition, economy considerations frequently prohibit the employment of permanent, salaried procurement personnel. This lack of continuity in procurement undoubtedly explains in part why some manufacturers believe that municipal purchasing is too frequently done by inexperienced officials, some of whom may be swayed by non-economic considerations such as entertainment or trips, while others attach so much importance to price that quality requirements are violated.

Restrictive Purchasing Procedures

Many manufacturers feel that municipal purchasing suffers some inefficiencies which are traceable to overly rigid procedures and practices. One response pointed out that in some towns the city council is required to approve all purchases including small or minor requisitions. This procedure frequently results in slow delivery. In other instances the limited authority granted the using department to order above certain dollar amounts resulted in orders below the minimum order requirement of the vendor. Unnecessary small orders are costly to both vendor and buyer. One reply stated:

> "Municipalities are difficult to do business with because everything must be handled according to their own special rules and regulations; whether the purchase is small or large the same cumbersome bidding procedure is followed for every single item required. Every community seems to have different requirements for handling invoices and billings . . ."

Bidding procedures were mentioned in several instances as a cause of difficulty, and there was strong evidence that suppliers felt that some cities have established unduly complicated and restrictive bidding requirements. One source stated:

> "In many cases the paper work involved on a bid worth $100 or $150 is not worth the answering of the bid by the manufacturer or local merchant. I know of a great many merchants prepared to give excellent service and price but . . . they are mystified by the maze of papers involved."

On small orders, or on items carrying narrow margins, the costs of bidding may seriously reduce the attractiveness of serving the cities' needs. When the list of potential suppliers is curtailed municipal procurement becomes less efficient. The following statement is illustrative:

> "A subdivision of a large municipality asked for bids on a $4,000 requisition. The specifications, which were of a general nature, covered twenty technically written and closely printed pages. A bid deposit of $500 was required with a performance bond of $2,000 to the successful bidder. Obviously, the amount of paper work and bid bond expense required is all out of proportion to the sum involved. In this instance it would be impossible for us to bid . . ."

Such statements should not be construed as indicating a belief that bond requirements are unnecessary. Manufacturers recognize the value of bidding in municipal procurement. And in addition many companies recognize that such requirements serve the interest of legitimate suppliers. As one source put it: "We believe that the policy of requesting Bid Bonds and Compliance Bonds is very good. It certainly keeps a lot of 'fly-by-nighters' out."

Difficulties with Specifications

Specifications should be used to make purchasing simpler for both buyer and seller by making it more certain that bids are really comparable in that quality is fully understood by suppliers. In fact, the advantages of com-

petitive bidding are dependent upon exact specifications. However, some suppliers have difficulties on this score. One comment was: "Most important is the lack of complete specifications on products the municipality uses." Another company stated: "Too often specifications are so drawn up that the city purchasing agent cannot properly evaluate the bids received." In both of these instances it seemed, from the other comments made, that difficulties were encountered because the specifications used did not conform to those which were customary for the industry. Obviously this may reflect a lack of purchasing "know-how" on the part of municipal procurement officials or it might indicate that customary specifications do not meet the needs of municipal buyers.

Since proper specifications so clearly serve the interest of both parties closer cooperation in this area should prove most fruitful. One letter commended the following type of arrangement:

> "The Board of Transportation (in one large city) has adopted a policy of sending to interested manufacturers a draft of their specifications (on certain requirements) for comments, suggestions, and help. This is done in order to enable the manufacturer and supplier to help the Board draw up specifications which will enable them to bid (effectively) and (thus) serve to insure better quality products at better prices."

In so far as the difficulties in the use of specifications are caused by a failure of buyer and seller to "use the same language" closer cooperation in determining specifications *in advance* of the request for quotations can serve the interests of both parties well.

One manufacturer made the following comments concerning his difficulties with specifications:

> "In the sale of fire fighting equipment the manufacturers' problems are considerably complicated by the specifications issued for the purchase of the equipment.
>
> "Fire department practices vary greatly from city to city both in equipment used and in use technique. . . . Manufacturers have standard models built in conformity to standards issued jointly by International Association of Fire Chiefs and National Board of Fire Underwriters. But what fire department buys apparatus to these specifications? Not one in twenty-five. It just would not meet that city's requirements.
>
> "Generally fire departments write their own ideas into specifications. Individuality of ideas is an outstanding characteristic of men in the fire service."

While the problem described here is not typical for many other industries, still it serves to focus attention on the need for more effective use of specifications.

Is Standardization Wise?

It was suggested that the policy followed by some cities of standardizing on one make of equipment, in certain product categories, could be a source of inefficiency in municipal procurement. To be sure, there are advantages in limiting the number of different makes of any particular requirement. If only one make of equipment is used, savings are made on service costs, and the required inventory on repair parts is lower. One supplier, however, stated that larger cities should recognize the possibility that standardizing on one make may mean a sacrifice of really effective competitive bidding. If it is known that a city has standardized on a certain make, other manufacturers may not bid (at least seriously) on orders. There is the danger that the account will be considered to be "captive." Effective competitive bidding is not possible if the bidders feel the award of the order has been pre-determined. The solution to this apparent dilemma, at least for the larger cities, is to "standardize" but not to an extreme; use of two or three makes helps maintain effective competitive bidding.

Direct Buying

As stated earlier, some purchasing officials have expressed resentment against what appears to be a policy, for some manufacturers, of refusing to accept orders placed directly with the plant. The replies indicated that most manufacturers do not follow such a rigid pol-

icy. It is not uncommon for suppliers to establish a minimum order to be filled directly since small orders are costly to handle. Neither is it uncommon for manufacturers to use franchised dealers to obtain a good coverage of the market. Both of these arrangements serve to limit direct procurement but the responses showed that these companies at least did not feel that direct vs. dealer buying created any real difficulty.

Several manufacturers stated that municipal officials sometimes tend to overestimate the price advantage attending direct purchase. Some pointed out that, except for larger cities, direct purchase actually may be more expensive than procurement through dealers. On table salt, for example, a municipality may be able to buy from a local jobber at a price better than that quoted by the manufacturer. The local jobber can buy a ten-ton truck load and pay a freight rate well below that which the manufacturer would pay at the L.C.L. rate on a direct shipment. Another reason why the distributor may be a lower cost channel is that the distributor spreads his costs over a full line of products obtained from numerous sources, whereas the individual company has only its own line to support the costs of direct cultivation of the market.

One company pointed out that their problem was not one of explaining to buyers the reasons for the use of dealers. Instead this company found that buyers sometimes wished to buy from dealers, whereas the company's policy was one of selling through their own sales engineers. It was recognized that some cities prefer to place business with local suppliers and the company attempted to meet this preference even though it meant a departure from the established policy.

Whatever the source of buyer dissatisfaction and irrespective of whether the difficulty is real or not the vendor should assume the responsibility of explaining to buyers the reasons for the use or non-use of distributors. After all the problem is essentially one of customer-relations. If the vendor finds it difficult to present a satisfactory explanation, the cooperation of buyers in establishing channel variants should be obtained more easily. Buyer antagonism tends to melt away when a vendor shows a genuine willingness to talk the problem out.

Pros and Cons of Group Buying

The possibility of group purchasing is of current interest especially among smaller municipalities which, because of their size, do not have very large purchasing power. In general it seems that manufacturers are willing to cooperate with attempts at group buying, but those who commented stressed its limitations. These limitations are of two basic types.

The first is simply that on many purchases the cities do not have the same requirements either as to products required or as to the timing of the requisition. If the procurement needs differ, the price advantage realized on joint orders is lost. One supplier stated: "In our line of equipment, which is highly specialized, little would be gained by the cities' endeavoring to purchase in groups to increase the size of the individual order."

The second major problem in group purchasing lies in the difficulties encountered in getting the necessary agreement among the participating towns. One company answered the inquiry with respect to cooperative purchasing in this manner: "You also refer to group purchasing . . . which indicates the possibility of combining the requirements of several municipalities . . . to make one direct purchase. This might be satisfactory but we would certainly not care to attempt to get the many personalities of the different cities together to decide on what is wanted, how it is required; and still expect everyone to be satisfied. We feel any attempt to do something of this kind is a near impossibility."

Another respondent added: "It has been the practice of our company to offer discounts to cities for larger quantity purchases. Certainly there would be no reason why several cities could not combine and thus avail themselves of the quantity prices. This has been considered in at least one instance but the

transaction never materialized." Here again, the writer indicated that the reason for the failure was that it was too difficult to get the cities to agree.

Local regulations concerning procurement and disbursing procedures differ widely among towns so that it is difficult to get agreement on group purchasing. In fact it is difficult to get centralized procurement within the municipality itself for these same reasons, and as a result the purchasing operation frequently is split up among diverse administrative units. This lack of coordinated purchasing within the municipality makes group purchasing between municipalities that much more difficult.

Improving Municipal Purchasing

The comments of manufacturers concerning problems encountered in selling the municipal market may be summarized into the following major suggestions for improving municipal procurement.

1. *Purchasing should be more centralized.* Although vendors are well aware of the organizational and administrative problems involved in changing over to greater centralization, a significant number of replies indicated the belief that decentralized purchasing was one cause of excessive procurement costs. When individual agencies do their own buying, smaller quantities and higher prices are frequently the result.

2. *Bid forms and procedures should be simplified.* Several companies expressed the opinion that the paper work involved in bidding on small requisitions caused a needless cost of selling. In one instance at least, a company was not making bids on small orders because "the paper work involved" made the order unattractive.

3. *Specifications should be more accurate and complete.* Accurate and complete specifications are not only essential for effective competitive bidding but serve to make the whole purchasing job more simple for both buyer and seller. Specifications should be complete, but should be no more detailed than necessary to assure that both parties fully agree as to the quality attributes of the products purchased. Such specifications serve to remove many of the difficulties encountered by vendors in meeting the needs of the municipal market and at the same time serve the procurement needs of municipalities.

These suggestions have small value if they are viewed by manufacturers as criticisms of municipal purchasing procedures. Similarly, municipal officials will gain nothing by translating these statements into criticism of the sales policies of manufacturers. Both should see in these suggestions areas of buyer-seller relationships which need attention. On each of these three counts much progress can be made if municipalities and suppliers work together. A *cooperative* approach to *common* problems always makes sense.

BUSINESS BRIEFS

U. S. POPULATION INCREASE

As of September 1, 1951, the Census Bureau estimated that the U. S. Population totaled 158,853,000, compared with an estimate of 152,196,000 on September 1, 1950. The actual count on April 1, 1950, showed a U. S. population of 150,697,361.

CONSTRUCTION DENIALS

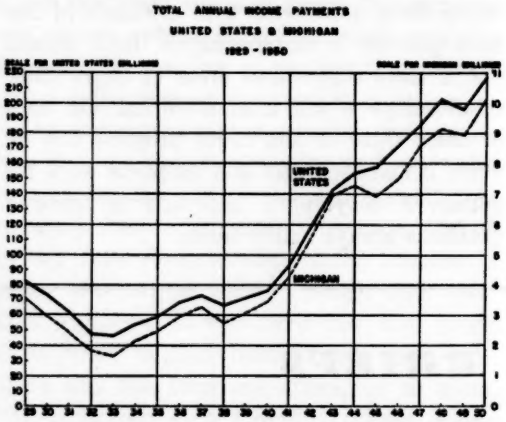
The Wall Street Journal reports that the N.P.A. denied applications to construct 2,196 projects estimated to cost more than $505 million in the fourth quarter. The projects include offices, banks, churches, gas stations, garages, and warehouses.

Michigan holds a high rank in total income and in per capita income.

Income Payments in 1950

J. Philip Wernette

THE dollar income of the people of the United States and of the State of Michigan reached an all-time high in 1950. Figures for the different states are presented by the United States Department of Commerce which measures "income payments to individuals."[1] This concept (which is something like the concept "personal income" used in analyses of the national income) comprises income received by individuals in the form of wages and salaries, net income of proprietors (including farmers), dividends, interest, net rents, and other items such as social insurance benefits, relief, veterans' pensions and benefits, and



allotment payments to dependents of military personnel. The figures include only payments made to persons in continental United States and are divided among the states on the basis of the residency of the recipients.

The total of income payments in the United States in 1950 was $217,245,000,000, an increase of nearly 11 per cent from the 1949 figure of $196,128,000,000; and substantially higher than the previous all-time high—the 1948 total of $202,007,000,000. (See Table 1.)

The Michigan total for 1950 was $10,128,000,000 which presented an increase of nearly 13 per cent over the 1949 figure of $8,937,000, and it also topped the previous all-time high made in 1948—$9,145,000,000. (See Table 1.)

Table 1

Total Income Payments to Individuals, 1929–50
(Millions of dollars)

Year	United States	Michigan
1929	$ 82,617	$ 3,543
1930	73,325	2,940
1931	61,971	2,413
1932	47,432	1,816
1933	46,273	1,641
1934	53,038	2,131
1935	58,558	2,469
1936	68,000	2,926
1937	72,211	3,257
1938	66,045	2,705
1939	70,601	3,054
1940	75,852	3,425
1941	92,269	4,271
1942	117,196	5,526
1943	141,831	6,924
1944	153,306	7,259
1945	157,190	6,902
1946	170,962	7,495
1947	185,339	8,550
1948	202,007	9,145
1949	196,128	8,937
1950	217,245	10,128

When these figures are divided by the corresponding figures for population, the resulting figures for *per capita* income payments are disclosed to have hit new peaks. The per capita figure for the entire United States in 1950 was $1,436 compared with $1,320 in

[1] This article is based on data presented by Robert E. Graham, Jr., "State Income Payments in 1950" U. S. Department of Commerce, *Survey of Current Business*, August 1951.

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1949 and $1,383 in 1948. The 1950 per capita figure for Michigan was $1,583 as against $1,425 in the preceding year and $1,481 in 1948. (See Table 2.)

Five states had total incomes exceeding those of Michigan. They were the following:

New York	$28,301,000,000
California	18,542,000,000
Pennsylvania	16,058,000,000
Illinois	15,329,000,000
Ohio	12,590,000,000

In 1949 also, Michigan ranked sixth in total income.

Eleven states showed higher per capita incomes than Michigan, the highest being Delaware with a figure of $1,909. The District of Columbia (for which a separate figure is computed) topped all the states with a per capita income of $1,986. Michigan ranked twelfth in 1949 also.

In 1950, Michigan's per capita income figure was 10 per cent above the national average. In 1929 also, Michigan was 10 per cent higher; in 1940, 13 per cent; in 1945, 6 per cent above the national average.

Table 2

Per Capita Income Payments, 1929–50
(Dollars)

Year	United States	Michigan
1929	$ 680	$ 745
1930	596	608
1931	500	503
1932	380	382
1933	368	348
1934	420	455
1935	460	524
1936	531	606
1937	561	659
1938	509	535
1939	539	591
1940	575	648
1941	693	795
1942	876	1,025
1943	1,059	1,276
1944	1,160	1,331
1945	1,191	1,260
1946	1,211	1,276
1947	1,293	1,410
1948	1,383	1,481
1949	1,320	1,425
1950	1,436	1,583

The principal sources of income are shown in Table 3. Compared to the country as a whole, Michigan's people derive relatively less of their income from agriculture, from government, and from trade and service income; and earn a higher percentage in the form of manufacturing payrolls. Moreover, the percentage of income earned in this form—41.1 per cent—is the highest of all the states. Next, in 1950, came Connecticut (35.6 per cent), Indiana and Rhode Island (34.2 per cent), and Ohio (34.0 per cent). The states with the *lowest* percentage of manufacturing income, in 1950, were: North Dakota (1.9 per cent), and South Dakota and Nevada (3.8 per cent). Michigan's position would suggest that it is the most highly industrialized state.

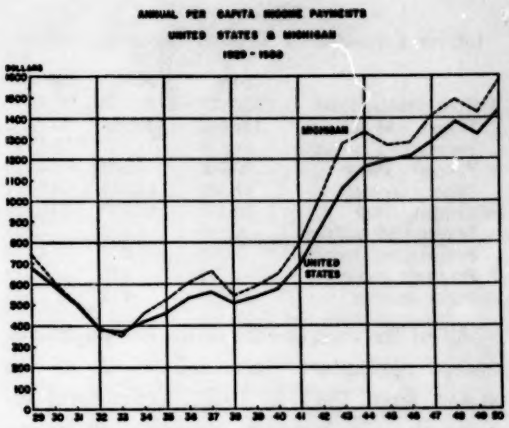


Table 3

Major Sources of Income Payments,
as Percentages of Total, 1950

	United States	Michigan
Agricultural Income	7.5	3.2
Government Income Payments	16.2	12.3
Manufacturing Payrolls	22.6	41.4
Trade and Service Income	26.3	22.7
All Other Income	27.4	20.4
	100.0	100.0

As shown in Table 4, Michigan people receive a higher percentage of their income in the form of wages and salaries than do Americans as a whole. In 1950, wages and salaries accounted for 74.4 per cent of Michigan income; whereas the corresponding figure for the entire nation was 65.2 per cent. The Michigan differential is probably partly explained by (1) the high level of manufacturing payrolls and (2) the small size of agricultural income in Michigan. In North Dakota and South Dakota, predominantly agricultural states, proprietors' incomes exceed wages and salaries.

Table 4

Income Payments, by Type of Payment, 1948–50
(Millions of Dollars)

	1948	1949	1950
United States, total	$202,007	$196,128	$217,245
Wages and salaries	131,087	130,169	141,632
Proprietors' income	38,529	31,787	36,217
Property income	20,902	21,603	24,119
Other income	11,489	12,569	15,277
Michigan, total	$9,145	$8,937	$10,128
Wages and salaries	6,696	6,628	7,533
Proprietors' income	1,235	1,020	1,134
Property income	791	816	914
Other income	423	473	547

All of the components of income payments, except agriculture, increased in all of the states, from 1949 to 1950. Agricultural income changes, however, presented an irregular pattern. Although farm income increased 6 percent in the nation as a whole, it declined in 18 states, including Michigan. (See Table 5.) Farm income dropped 28 per cent in Oklahoma, 17 per cent in Texas, and 16 per cent in Kentucky. Agricultural income, however, rose 64 per cent in Montana, 37 per cent in Nebraska, and 34 per cent in South Dakota.

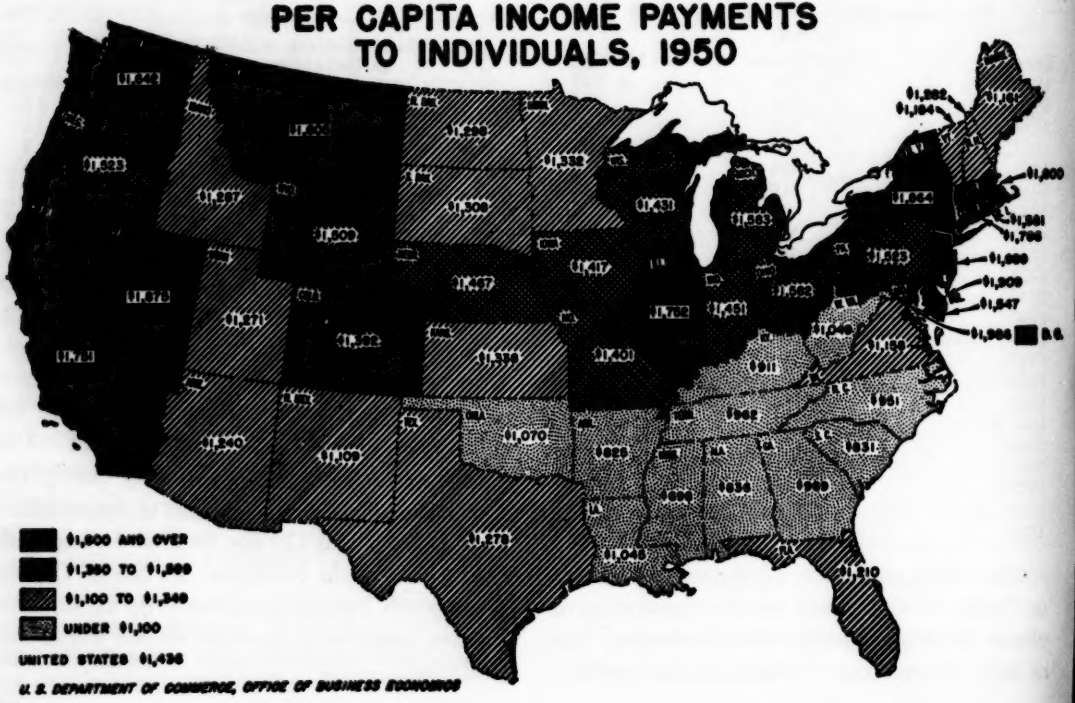
The people of the United States and of Michigan enjoyed in 1950 the highest incomes —both total and per capita— in our history. (And, it might be added, in the world.) Some of the rise over 1948 and 1949, to be sure, represented a mere inflationary rise of prices; but most of the increase was real—it reflected increased productive activity and larger real incomes. The *dollar* value of the national income rose slightly more than 10 per cent, from 1949 to 1950. The index of consumers' prices averaged 1.7 per cent higher in the latter year. The rise in the *real* national income, therefore, may be taken to be about 8 per cent. This figure may be compared with the calculated increase in the gross national product (at constant prices) of 7.5 per cent.[2] About half of the gain, however, was absorbed by tax increases.

Table 5

Percentage Changes in Total Income Payments and in Selected Components, 1949 to 1950

	United States	Michigan
Total Income Payments	+11	+13
Agricultural Income	+ 6	− 8
Non-agricultural Income	+11	+14
Government Income Payments	+14	+ 9
Private Non-agricultural Income	+11	+15
Trade and Service Income	+ 9	+12
Manufacturing Payrolls	+13	+18

[2] U. S. Department of Commerce, *Survey of Current Business, National Income Supplement*, 1951, p. 146.



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